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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/702,142	10/30/2000	Roberto Padovani	PA000043	1140

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Patents Department
5775 Morehouse Drive
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EXAMINER	
SHAH, CHIRAG G	

ART UNIT	PAPER NUMBER
2664	6

DATE MAILED: 07/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/702,142	PADOVANI ET AL.	
	Examiner	Art Unit	
	Chirag G Shah	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 October 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10/30/00* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4 and 5*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4, 6-15, and 17-20 rejected under 35 U.S.C. 102(e) as being anticipated by Blanchard et al, herein Blanchard (U.S. Patent No. 5,862,132).

Referring to claims 1, 17, and 20, Blanchard discloses in figure 1, claims 1, 2 and 13, column 2, lines 41 to column 3, lines 27 of a wireless communication system, a method for transmitting pilot references **(TDMA burst 50 as in figure 4)** from a plurality of transmission sources/access points **(transmitters 2-6 transmit bursts of data to M receivers as denoted by reference number 8-12 as disclosed in column 2, lines 40-67),** the method and system comprising: receiving (having a controller configured) at each transmission source **(transmitters 2-6 in figure 1)** one or more signals indicative of a time reference **(GPS as disclosed in column 2, lines 40-67)** for the communication system; generating at each transmission source **(transmitters 2-6 in figure 1)** a plurality of pilot bursts (bursts of data) for a pilot reference (the transmitters 2-6 would transmit to the receivers information-pilot identifying its specific location as well as other information, warning messages, or the like **as disclosed in column 3, lines 10-27)** , wherein the pilot bursts are in synchronization with the time reference **(timing** reference 1 allows each of the transmitters to transmit burst of data at precise times and for precise time

intervals **as disclosed in column 2, lines 40-67**); transmitting the plurality of pilot bursts from each transmission source (each of the N transmitters 2-6 transmit their information bursts of data to M receivers **as denoted by reference number 8-12 as disclosed in column 2, lines 65-67)** as claim.

Referring to claims 2 and 18, Blanchard discloses in figure 1 and in column 2, lines 41-67 wherein the pilot bursts (bursts of data) from the plurality of transmission sources (N transmitters as denoted by reference numbers 2-6 for transmitting bursts of data) are aligned in time at the time of transmission (each of the N transmitters receives a signal from timing reference 1 for supplying each of the transmitters with a precise time reference having time knowledge from a GPS system) as claim.

Referring to claim 3, Blanchard discloses in claim 1 and in column 2, lines 41-67 wherein the plurality of pilot bursts (bursts of data) from each transmission source (N transmitters in figure 1) are transmitted at predetermined time intervals (timing reference 1 allows each of the transmitters to transmit bursts of data at precise times and for precise time intervals) as claim.

Referring to claim 4, Blanchard discloses in figures 3, 4, claim 3 and in column 4, lines 21 to 55 wherein each of the plurality of pilot bursts has a predefined width (TDMA burst 50 is shorter in duration or width than the time interval for each slot and the predefined p bits of preamble as identified in block 54 is chosen to be 32 bits in width) as claim.

Referring to claim 6, Blanchard discloses in column 4, lines 21-38 of withholding data transmission at each access point during transmission of the pilot bursts (TDMA burst 50 includes f bits of fill as denoted by block 56 whereby the f bits of fill are used to allow some time for the receiver between the p bits of preamble and the message bits to follow indicating that

TDMA burst having the preamble is transmitted by each transmitter (access point) followed by message bits) as claim.

Referring to claim 7, Blanchard discloses in figure 7 and in column 5, lines 27 to column 6, lines 5 of processing at each transmission source (N transmitters of figure 1) pilot data (TDMA burst) in accordance with a particular processing scheme such that the pilot reference (TDMA burst) from each transmission source (N transmitters) is differentiated (A TDMA burst having a structure of Figure 4 is modulated with a carrier frequency via modulator 80, the resultant modulated signal is multiplied with a spreading sequence as generated by PN generator/spreading block for transmitting an output burst that includes the specific TDMA burst at its specific time slot at the frequency of the carrier frequency while its spectrum is spread over a predetermined frequency rang via spreading sequence 84, thus, it is understood that may other modulation techniques may be used such as differential BPSK or QPSK for other transmission sources) from pilot reference from other transmission sources.

Referring to claim 8, Blanchard discloses in figure 7 and in column 5, lines 27 to column 6, lines 5 wherein the processing at each transmission source (N transmitters of figure 1) includes spreading the pilot data with a pseudo-noise (PN) sequence at a particular offset that is different from offsets for other transmission sources (A TDMA burst having a structure of Figure 4 is modulated with a carrier frequency via modulator 80, the resultant modulated signal is multiplied with a spreading sequence as generated by PN generator/spreading block for transmitting an output burst that includes the specific TDMA burst at its specific time slot at the frequency of the carrier frequency while its spectrum is spread over a predetermined frequency rang via spreading sequence 84, thus, modulator 80 may perform differential BPSK modulation whereby the same

PN code form the previous transmitted bit sequence is transmitted if the corresponding bit within the TDMA burst was a logic 0, while the inversion of the PN code for the previous transmitted bit sequence is transmitted if the corresponding bit within the TDMA burst was a logic one, indicating that spreading burst with PN sequence in different offsets from other transmission sources) as claim.

Referring to claim 9, Blanchard discloses in column 4, lines 45 to 55 of continuing transmission of the plurality of pilot bursts from a particular transmission source even if no data is to be transmitted from the transmission source (TDMA burst 50 is shorter in duration than the time interval for each slot (Ts), whereby no transmission occurs for some time interval after the transmission of the TDMA burst and before the beginning of the next time slot, indicating that a timeslot may include 2 pilot bursts, one may be longer and the other may last unit the time slot ends and further indicating that a second burst is transmitted even when no data is to be transmitted until the time slot ends) as claim.

Referring to claim 10, Blanchard discloses in figures 3 and 4 wherein transmission from each transmission source occurs over slots (N time slots), and wherein each slot covers a particular time period and includes a particular number of pilot bursts (each user is assigned a slot number, frame position number and an interval number, in particular, the time slot number defines which slot within a frame the user will transmit, the frame position number defines the first frame in which the user will transmit and the interval number defines the number of frames between transmission as disclosed in column 3, lines 40 to column 4,lines 20) as claim .

Referring to claim 11, Blanchard discloses in figures 3 and 4 and specifically in column 3, lines 40 to column 4, lines 55 that each slot may have two pilot bursts, if a user B was

assigned the slot number of 2, a frame number of 1 and an interval number of 2, user B would transmit in the time slots as denoted with the letter Bin superframe 40 and, thus, would transmit M/2 times per superframe as claim. Also, as disclosed in column 4, lines 44-55, TDMA burst 50 is shorter in duration than the time interval for each slot (Ts), whereby no transmission occurs for some time interval after the transmission of the TDMA burst and before the beginning of the next time slot, indicating that a timeslot may include 2 pilot bursts, one may be longer and the other may last unit the time slot ends. In addition, the communication system of Blanchard's invention has the capability of assigning difference users more transmission bandwidth based upon their needs through the above-described superframe allocation as claim.

Referring to claim 12, Blanchard discloses in column 3, lines 40 to column 4, lines 20 wherein each pilot burst (data bursts) is associated with a respective portion of the slot (time slot number) and positioned in the center of the associated portion (frame position number) as claim.

Referring to claim 13, Blanchard discloses in column 4,lines 21-61 of padding both sides of each pilot burst in an idle slot with additional transmissions of at least a particular minimum period (TDMA burst 50 includes f bits of fill as denoted by block 56 whereby the f bits of fill are used to allow some time for the receiver between the p bits of preamble and the message bits to follow, the number of fill bits is selected considering the receiver processing time requirements and burst efficiency) as claim.

Referring to claim 14, Blanchard discloses in claim 13 and in figure 1 of transmitting immediately on both sides of each pilot burst to ensure that the pilot burst is received at or near its steady state value (a plurality of transmitters each coupled to the timing reference, for transmitting bursts of data at precise times and time intervals at a predetermined frequency and

permitting more than one of the plurality of transmitters to transmit at the same time, ensuring that the pilot bursts are transmitted and received on both sides at a steady state value based on the synchronization with GPS) as claim.

Referring to claims 15 and 19, Blanchard discloses in column 2, lines 41-67 wherein the one or more signals used to derived the time reference for the communication system are received from a GPS satellite constellation (each of the N transmitters receives a signal from timing reference 1 for supplying each of the transmitters with a precise time reference having time knowledge from a GPS system) as claim.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 5, 16, and 21 rejected under 35 U.S.C. 103(a) as being unpatentable over Blanchard in view of Kanterakis et al, hereinafter Kanterakis (U.S. Patent No. 6,574,267).

Referring to claims 5, 16, and 21, Blanchard discloses in column 2, lines 40-67 and in figures 1 of a wireless communication system, a method for transmitting pilot references (burst messages) from a plurality of transmission sources (transmitters 2-6 in figure 1), the method comprising: at each transmission source (transmitter 2-6) receiving one or more signals from a GPS constellation (as disclosed in column 2, lines 40-51), processing the one or more received signals to derive a time reference for the communication system (as disclosed in column 2, lines

40-67 each of the N transmitters receives a signal from timing reference 1 for supplying each of the transmitters with a precise time reference having time knowledge), generating a plurality of pilot bursts for a pilot reference, wherein the pilot bursts are in synchronization with the time reference and transmit plurality of burst at predetermined time intervals (timing reference 1 allows each of the transmitters to transmit burst of data at precise times and for precise time intervals as disclosed in claims 1, 13 and column 2, lines 40-67) and transmitting the plurality of pilot bursts from each transmission source (each of the N transmitters 2-6 transmit their information bursts of data to M receivers as denoted by reference number 8-12 as disclosed in column 2, lines 65-67). Blanchard fails to disclose that transmitting the plurality of pilot burst at or near a maximum transmit power level of the transmission source. Kanterakis teaches of a CDMA system employing spread-spectrum modulation. Kanterakis discloses in claims 26 and 28 when transmitting the preamble (pilot burst) and listening for an acknowledgement a plurality of times, the power should be successively maximized if no acknowledgment corresponding to any of the preamble transmissions is received. Thus, if no acknowledgment is being received there may be too much interference, transmitting pilot burst while successively increasing power reduces interference. Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of Blanchard to include the teaching of maximizing the power level during transmission of pilot bursts as taught by Kanterakis in order to receive an acknowledgement signal thus reducing interferences from other transmissions.

5. Claims 22 and 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Blanchard in view of Marchetto et al, hereinafter Marchetto (U.S. Patent No. 5,787,133).

Referring to claim 22, Blanchard discloses in column 3, lines 7-27, column 2, lines 40-67, figure 1 and 7 of an RF module (receivers 8, 10 and 12) configured to receive a modulated signal (figure 7) over a wireless communication link and to condition the received signal to generate a conditioned signal (the receivers 8-12 will receive such transmitted burst and processors 14-18 may be used to determine what information has been transmitted as disclosed in column 3, lines 7-27); and a processor block 14-18 coupled to the RF module (receivers 8-12) and configured to process the conditioned signal to recover a plurality of pilot references transmitted from a plurality of access points (processors 14-18 may be used to determine what information has been transmitted by the transmitters 2-6 as disclosed in column 3, lines 7-27), wherein the pilot reference from each access point (transmitters 2-6) is transmitted in pilot bursts that are synchronized with a system time (GPS) reference (timing reference 1 allows each of the transmitters to transmit burst of data at precise times and for precise time intervals as disclosed in column 2, lines 40-67); and transmitting the plurality of pilot bursts from each transmission source (each of the N transmitters 2-6 transit their information bursts of data to M receivers as denoted by reference number 8-12 as disclosed in column 2, lines 65-67). Blanchard discloses the processor block is coupled to the RF module, but fails to disclose explicitly that the processor block may be a modem block. Marchetto et al discloses in figure 1 and in column 1, lines 20-30 and in column 2, lines 15-30 that "modem" is a concatenation of portions of two words, "modulator" and "demodulator," and is applied to devices that are capable of modulating data for transmission over a telephone or RF link and demodulating data received from another location that was modulated by a similar device. Thus, modem is used to demodulate or recover a plurality of pilot references transmitted from a plurality of transmitters or access point.

Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings using the modem as the processor as taught by Marchetto into Blanchard's invention in order to identify and recover the timing of each burst symbol in the data to accurately determine when each burst occurs.

Referring to claim 23, Blanchard discloses in figure 7 and in column 5, lines 27 to column 6, lines 5 wherein the processing at each transmission source (N transmitters of figure 1) includes spreading the pilot data with a pseudo-noise (PN) sequence at a particular offset that is different from offsets for other transmission sources (A TDMA burst having a structure of Figure 4 is modulated with a carrier frequency via modulator 80, the resultant modulated signal is multiplied with a spreading sequence as generated by PN generator/spreading block for transmitting an output burst that includes the specific TDMA burst at its specific time slot at the frequency of the carrier frequency while its spectrum is spread over a predetermined frequency rang via spreading sequence 84, thus, modulator 80 may perform differential BPSK modulation whereby the same PN code form the previous transmitted bit sequence is transmitted if the corresponding bit within the TDMA burst was a logic 0, while the inversion of the PN code for the previous transmitted bit sequence is transmitted if the corresponding bit within the TDMA burst was a logic one, indicating that spreading burst with PN sequence in different offsets from other transmission sources) as claim.

Any response to this action should be mailed to:

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Hand-delivered responses should be brought to Crystal Park II, 2021 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chirag G Shah whose telephone number is 703-305-5639. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 703-305-4366. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cgs
July 9, 2004

Ajit Patel
Primary Examiner